Chapter 1 Purpose and Need

1.1 Introduction

Caltrans is proposing to improve 5 kilometers (3 miles) of U. S. Highway 395, from about 2 kilometers (1 mile) north of Lee Vining to about 4 kilometers (2.5 miles) south of State Route 167 (see Figures 1.1 and 1.2). The project would widen the existing highway's shoulders to 2.4 meters (8 feet) throughout the project limits.

Currently, much of the existing highway contains shoulders less than 1.2 meters (4 feet) in width. In addition, the lack of paved shoulders for bicyclists and lack of turnouts for visitors to pull over and enjoy the views of Mono Lake have been noted by the Mono County Regional Transportation Plan. Deficiencies of the existing alignment have led to increased conflicts with through traffic. The cumulative effect of increased tourism, slow recreation vehicles, lane changes and sightseeing along the route has contributed to a decrease in the efficiency of the existing roadway. To improve the situation, the Mono County Local Transportation Commission decided to sponsor this project in the 1998 State Transportation Improvement Program.

Additional benefits to widening the shoulders are the subsequent improvements of other existing highway features required as part of current highway design standards. Along with the widening, the project would improve the highway geometry, cross-drainage facilities, and existing vehicle pullouts. Retention areas adjacent to the highway would also be expanded. Project costs were estimated at $14,164,040 on September 2003, which includes $729,000 for right-of-way and utility relocation and $13,435,040 for construction. Project construction will be funded from the Regional Improvement Program and is currently scheduled for the 2006/2007 fiscal year.

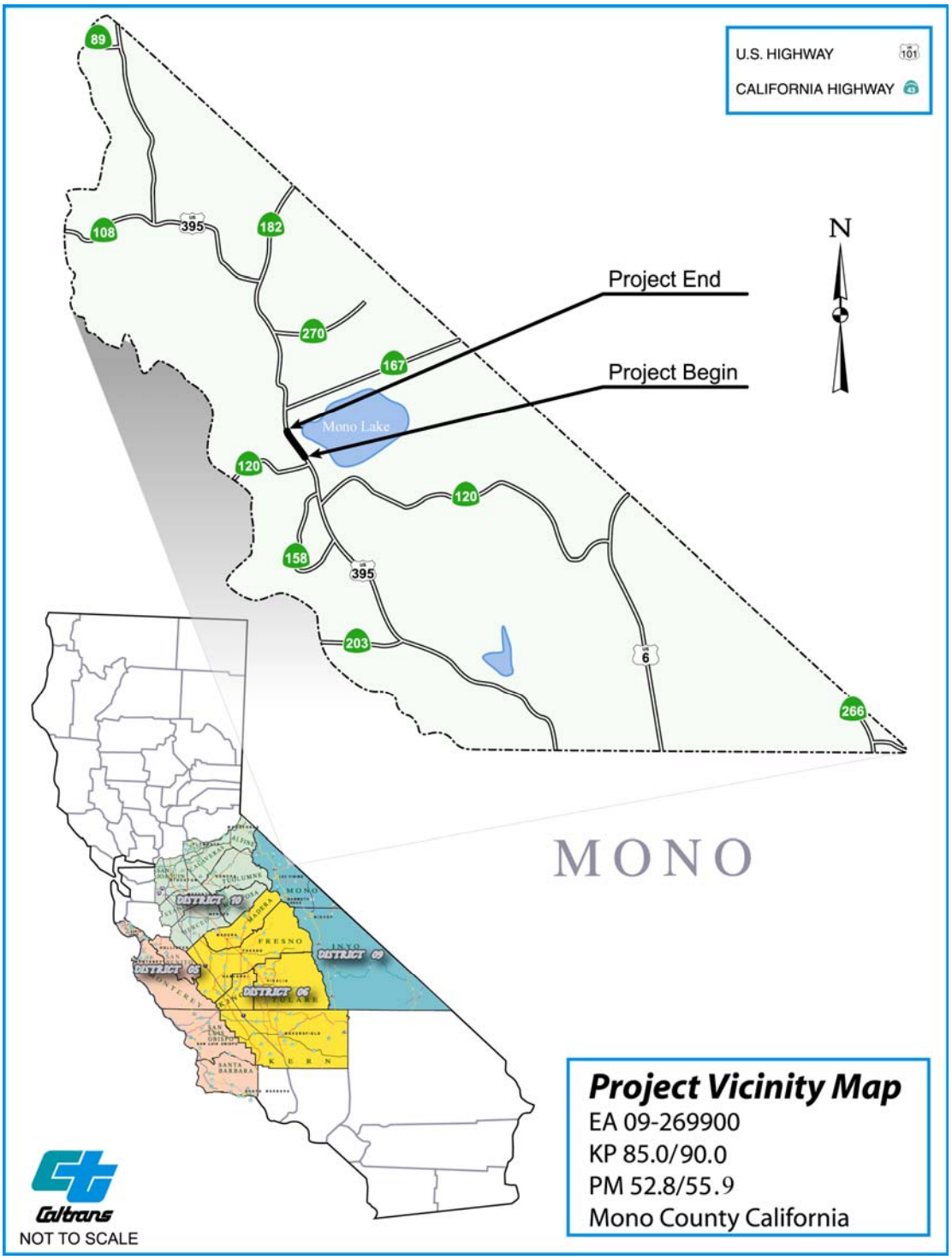

Figure 1.1: Project Vicinity Map

Figure 1.2: Project Location Map

1.2 Project Background

1.2.1 Project History

The Mono County Local Transportation Commission initiated this project in response to regional and local concerns about this segment of U.S. Highway 395. The Mono County Regional Transportation Plan, 1998, identified U.S. Highway 395 as a roadway that needed adequate shoulders added during future maintenance projects. The Regional Transportation Plan also noted that the portion of Highway 395 from the north end of Lee Vining to the Mono Inn was a concern to Mono Basin residents. It stated that the roadway had no paved shoulders for bicyclists and no turnouts for visitors to pull over and enjoy the view. It also noted that the Old Marina turnoff is abrupt. To improve the situation, the Mono County Local Transportation Commission approved sponsoring this project in the 1998 State Transportation Improvement Program as a Regional Transportation Improvement Program project.

Project Study Reports were prepared by Caltrans in 1997 and approved in April 1997. Initially, the project was designed to improve 4.8 kilometers (2.9 miles) of U.S. Highway 395, by providing 2.4-meter (8-foot) shoulders throughout the project limits, improving highway cross-drainage, and constructing several scenic pullouts. During project development, the project changed to further meet the needs and concerns of the local community and governmental organizations. The project limit was expanded to the north to allow for an additional pullout if needed. The proposed alignment was adjusted to allow for rockfall retention areas where needed and to prevent the creation of additional cut slopes susceptible to rockfall (some cut slopes have been proven difficult to stabilize and vegetate).

Retaining walls and fill and cut slopes of a ratio of 1 to 2 were evaluated for use throughout the project. Because of the scenic nature of the area, the short-term visual impacts of fill slopes along with their larger footprint have been evaluated and compared to the long-term impacts and smaller footprint associated with the use of retaining walls. Each of these has been evaluated regarding the sensitivity of the affected area as well as the nature of the long- or short-term scenic impact.

Several additional aspects of the proposed project were also studied for their respective impact within the project limits. Variable width shoulders were evaluated with respect to sensitive habitat and bicycle safety, overall safety, and route continuity. Pullout locations were evaluated for need, safety and impacts. Left-turn movements were evaluated for the Picnic Grounds Road and Cemetery Road

intersections. New driveway access designs were evaluated for conformance to standards. Minimization of guardrail was evaluated from a safety perspective as well as an impact to visual and wildlife qualities.

The build alternatives proposed in this document take the best aspects from the alternatives approved in the Project Study Report of 1997. The alternatives in the Project Study Report generally followed the existing alignment shifting up to 1.5 meters (5 feet) to the west and 1.2 meters (4 feet) to the east. At the time, cutting into the rockfall areas was considered acceptable to minimize the fill toward the lake. The Project Development Team reevaluated this when accurate terrain data revealed the magnitude of the cut slopes and the potential visual impact. Meeting Highway Design Manual design standards and providing rockfall retention areas were considered a priority.

This project was programmed in the 1998 State Transportation Improvement Program by the California Transportation Commission.

1.2.2 Community Interaction

A community open house meeting was held on June 9, 1999 to inform the community and local governmental agencies of Caltrans' intentions with the proposed project. The goal was to present the details of the project, explain the environmental process to be followed, and to solicit public opinion and comments. The community had the following concerns: existing driveway configurations, sight distance concerns, the high speeds in relation to turn movements, wetland impacts, wildlife movement, signs for wildlife movement, noise levels, air quality, construction delays, construction practices, vista points and pullout locations, pullout signs, bus stop locations, construction dust control, impacts of potential wall locations and wildlife movement, and cross-highway drainage. Local agency concerns included the following: construction access in and out of the area, impact to the existing Ice Age tufa in the basin, and effects on natural, cultural, recreational and aesthetic resources.

Periodic project development team meetings were held with local resource agencies to answer questions and obtain information regarding acceptable design concepts. Team members also met with utility companies that would be affected by the project. A basic design of the project was produced to establish specific design parameters and get input from all involved parties.

A second open house meeting was held on June 27, 2001 at the new Lee Vining High School Gym to answer questions that had developed since the first meeting in 1999. Results from most of the environmental studies were available, along with visual displays of the design work and proposed aesthetic treatments. Members of the public had many questions and concerns, similar to concerns previously obtained through earlier meetings or contacts.

1.2.3 Existing Roadway

U.S. Highway 395, once known as the Three Flags Highway, originally crossed the United States, stretching from the Mexican border to the Canadian border. In the late 1920s, the roadway was straightened, graded and surfaced with oiled rock pavement. The typical cross-section was a 10.8-meter-wide (36-foot-wide) graded roadbed with 6 meters (20 feet) of oiled surface. In the 1930s and 1940s, the road was widened to 6.6 meters (22 feet), with plant-mixed surfacing and 2.4-meter (8-foot) dirt shoulders. Over the years, the lanes have been widened to 3.6 meters (12 feet), the alignment has been modified, and various sections have been converted to four lanes.

U.S. Highway 395 is a major route in the transportation corridor that connects Southern California to the eastern Sierra (Inyo and Mono counties) and Nevada. This transportation corridor has been identified in previous California planning studies as one of five major recreational corridors serving all of Southern California and one of 11 major regional transportation corridors in California. The transportation corridor serves several purposes. First, the highway is vital to the economy of the eastern Sierra region for the shipment of goods and materials. The region imports virtually all of its food, clothing and other goods. Second, this corridor facilitates tourism. This route sees major recreational use, with more than 7 million visitor-days of recreation generated annually in the eastern High Sierra.

U.S. Highway 395 is functionally classified as a Rural Principal Arterial and is included in the Federal Aid Primary Highway System. It is included in the State Freeway and Expressway System, the State Scenic Highway Master Plan and the Mono County Scenic Highway System. This route is also considered a High Emphasis Route as part of the Interregional Road System and connects transportation systems across four states. U.S. Highway 395 is included in the Subsystem of Highways for the Movement of Extra Legal Permit Loads. It is also a route in the Federal Surface Transportation Assistance Act, which authorizes use for larger trucks

and gives them access to facilities off the route. U.S. Highway 395 is essential to the economic health and growth of the eastern Sierra region.

1.3 Project Description

U.S. Highway 395 runs along the base of the Sierra Nevada Mountains, located above the western shore of Mono Lake. Roadway elevation changes about 34 meters (111.5 feet) within the project limits. The roadway is primarily a two-lane conventional highway with shoulder widths that vary from 0.6 meters to 2.4 meters (2 feet to 8 feet).

The southern half of the project is next to Inyo National Forest and California State Park land, with one Mono County road intersection at Picnic Grounds Road. There is no left- or right-turn lane at Picnic Grounds Road. The northern half of the project runs next to six private properties and one public property. Eleven driveways have access onto the roadway. Most of the existing driveways are skewed at angles beyond Caltrans standards. At the north end of the project, a county road—Cemetery Road—intersects with U.S. Highway 395. Dispersed throughout the project limits are eight unpaved areas that can be used as small pullouts. Guardrail exists in about half of the project limits.

1.3.1 Regional & System Planning

The Caltrans Interregional Transportation Strategic Plan identifies U.S. Highway 395 as a High Emphasis Focus Route. This designation means that Caltrans must effectively program improvements for the route so that the route reaches minimum facility standards by the end of the 20-year planning horizon.

The route concept, as described in the Transportation Concept Report, is to keep U.S. Highway 395 in this part of Mono County as a two-lane highway. Four-lane, all-paved passing areas, however, lie just beyond each end of the project limits. The project's build alternatives are consistent with the Transportation Concept Report and the District System Management Plan. The District System Management Plan identifies U.S. Highway 395 as one of two major transportation corridors in Caltrans District 9, which encompasses Kern, Inyo and Mono Counties. South of Lee Vining, the District's goal is to continue upgrading U. S. Highway 395 to four lanes. North of Lee Vining, the goal is to provide passing lanes, truck-climbing lanes, and operational improvements where feasible.

The Mono County Regional Transportation Plan outlines provisions for an improved countywide highway and roadway system to serve the long-range projected travel demand. This plan requests that Caltrans improve safety and upgrade structural adequacy and consistency per Caltrans standards and county road standards. It also calls for the consideration of non-motorized means of transportation within Mono County. The Regional Transportation Plan also notes Mono Basin residents' concerns about safety on the portion of U.S. Highway 395 from the north end of Lee Vining to the Mono Inn. This segment of highway falls within the proposed project limits. The Regional Transportation Plan states that this segment contains no paved shoulders for bicyclists and no turnouts for visitors to pull over out of the path of traffic (whether for sightseeing, emergencies or to allow traffic to pass). The plan also states that the Old Marina turnoff is abrupt. Residents would like to see wider shoulders in that area, turnouts, and an improved turnoff at the Old Marina.

Both proposed build alternatives would be consistent with goals listed in the Mono County Regional Transportation Plan.

1.3.2 Traffic Volumes

U.S. Highway 395 is a major element of a transportation corridor connecting Southern California with the eastern Sierra recreation areas. An Origination and Destination Travel Study (for the segment of U.S. Highway 395 going through Inyo and Mono counties), conducted in 2000, indicated that 68% of the non-commercial traffic through the area was for recreation. Recreational vehicles made up 4.3% of that traffic. The study also found that 36% of all vehicles coming into the eastern Sierra region originated from Southern California, and those vehicles held an average of 2.5 persons per vehicle. Peak traffic periods correlate with three-day holidays, not commute periods. The "normal" weekday traffic is light. Truck traffic was estimated at 9.6% within these volumes.

Table 1.1 shows the current and projected traffic data, based on 2000 traffic volume counts. The future traffic volumes are based on a 20-year growth rate of 0.5% per year, based on Caltrans growth rate projections.

Table 1.1: 2000 Traffic Volumes & 2000 Annual Average Daily Truck Traffic (AADT)

	Data Year 2000	10-year 2016	20-year 2026
Annual Average Daily Traffic	3,700	4,010	4,210
Peak Hour	630	-	-
Peak Month ADT	6,000	-	-
Trucks (% Total AADT)	9.6%	-	-

Data Year = 2000
10- and 20-year dates are projected out from the year of construction

The two-lane highway capacity is 633 vehicles per hour for this stretch of U.S. Highway 395. Average daily traffic volumes range from 1,490 to 6,000 vehicles. While the "annual" average daily traffic count is 3,700, the "peak month" average daily traffic count rises to 6,000 vehicles. As many as 6,800 vehicles have traveled the route on a given day during peak periods.

The posted speed limit in this segment is 96.5 kilometers per hour (60 miles per hour). Just before the project limits is an 88.5-kilometer-per-hour (55-mile-per-hour) zone, and right after the project limits is a 104.6-kilometer-per-hour (65-mile-per-hour) zone. However, the average travel speed recorded through the project limits is 76.4 kilometers per hour (47.5 miles per hour).

1.3.3 Level of Service

Level of Service (LOS) is a measure of how free or constrained traffic travels along a road segment or through an intersection. For two-lane rural highways, LOS is determined in terms of delay, speed and capacity use. LOS ranges from free flowing ("A") to extremely congested ("F"). An LOS of "F" indicates substantial congestion, with traffic demand exceeding capacity.

For the project limits, the LOS in 2002 was "D." After completion of the proposed project, the LOS would remain at "D," but the estimated average travel speed would increase from 76.4 to 80.1 kilometers per hour (47.5 to 49.8 miles per hour). The proposed project is not a capacity-increasing project and, therefore, LOS figures are not expected to improve for the existing roadway.

1.3.4 Safety Issues

Table 1.2 shows accident information for U.S. Highway 395, obtained from Caltrans traffic investigation offices. The Traffic Accident and Survey Analysis System and Table B show 14 collisions on this portion of U.S. Highway 395 during the five-year period ending December 30, 2000. The studies indicated a total accident rate of 0.72 accidents per million vehicle miles, which is below the statewide average rate of 0.90 accidents per million vehicle miles for a similar roadway.

Table 1.2: Five-Year Traffic Accident and Survey Analysis System Table B–Mono 395 KP 85.0/90.0 (PM 52.8/55.9)

Type and Number of Accidents		Accident Rate/MVM		
Fatal	0		Actual	Statewide Average
Injury	8	Fatal	0.000	0.033
Property Damage Only	6	Fatal + Injury	0.41	0.45
Total	14	**Total**	0.72	0.9

Source: Caltrans traffic investigation offices
Accident Rate/MVM = accident rate per million vehicle miles

The analysis revealed that injuries occurred in 57% (8) of the collisions. There were no deaths (fatal accidents) within the project area during the five-year period studied. A fatality accident rate of zero is below the state average of 0.033 for similar roadways. The fatal-plus-injury rate of 0.41 is just below the state average of 0.45 for similar roadways.

The accident data revealed additional information: 71% of the accidents involved only one vehicle; 57% of the collisions occurred at night; 14% occurred when the pavement was wet or icy; 72% of the collisions involved hitting an object (5 deer, 2 rocks, 2 embankment areas, and 1 spilled load). For 50% of the collisions, the cause of the collision was attributed to something other than the driver.

In addition, a plotting of accident locations along the length of the project limits showed that roadway areas with full 2.4-meter (8-foot) shoulders had no accidents, while the areas with reduced shoulder widths had one or more accidents for the study period.

1.3.4.1 Highway Shoulder Improvements

Narrow shoulders contribute to space conflicts between motorists and any bicyclist or animal that comes into the shoulder area. Narrow shoulders along the highway give motorists little room for corrective maneuvers. On the other side, any escape for a bicyclist or deer, for example, in the shoulder is reduced because of guardrail

throughout much of the project limits. The public has noted that many "near misses" have occurred. Public opinion voiced at project meetings and during a safety field review conducted for the Project Study Report indicated that many driveways and dirt roads within the project limits intersect the highway at acute angles and should be either corrected to Caltrans standards or eliminated.

The proposed project would improve the existing shoulders through the project area as proposed by the project alternatives. Wider shoulders would provide more options to motorist during emergency situations. Greater visibility and increased recovery area are other benefits of the project.

1.3.4.2 Pullout Improvements

Eight unpaved widened areas currently serve as pullouts along the route. The roadway at these spots does not provide paved deceleration or acceleration lanes. Construction of a uniform shoulder throughout the project limits would eliminate these pullout areas. In response to public concern and planning recommendations in the Mono County Regional Transportation Plan, Caltrans has identified five existing locations within the project limits that would be re-established as pullouts and one new location near Cemetery Road for a new vista site.

1.3.4.3 Culvert Upgrade

During periods of heavy storm water flow, the inlets of the culverts at Tioga Lodge plug up with debris carried from higher elevations. Because the pipes cannot accommodate such heavy flows, water and debris have flooded the highway at least four times over the past 60 years, resulting in closure or destruction of the road.

As part of both proposed build alternatives, the drainage would be upgraded from the existing two 914-millimeter (36-inch) diameter corrugated steel pipes to a 2.4-meter by 1.8-meter (8-foot by 6-foot) reinforced concrete box culvert.

1.3.4.4 Rockfall Improvements

Caltrans, in fall of 1997, evaluated six cut slopes identified by Caltrans Maintenance crews within the proposed project limits. The slopes are composed of partially cemented alluvium and/or colluvium and unconsolidated lake deposits, with some weathered and fractured granitic rock at some locations. A varying degree of rockfall retention area currently exists along U.S. Highway 395 at the base of these slopes. The current retention area consists of .61 meter to .91 meter (2 to 3 feet) of paved shoulder and 1.5 to 3 meters (5 to 10 feet) of unpaved soil next to the shoulder. The shoulder widths of the existing highway are not consistent throughout the project

limits, so retention space is also inconsistent. This results in debris reaching the highway, creating hazards for motorists. Construction of the proposed project would provide U.S. Highway 395 with additional rockfall retention area at the base of problematic slopes. This would consist of 2.4-meter (8-foot) shoulders where proposed and additional unpaved shoulder area. Modern rockfall/erosion technologies would not only help keep debris off the highway, but should also provide added room for emergency maneuvering and errant driver recovery.

During the development of the project, Caltrans noted that some improvements could be made to rock slopes within the project limits at the cost of increasing routine maintenance responsibilities for this stretch of U.S. Highway 395. In addition to increasing the rockfall retention area, these improvements involved scaling and cleaning the exposed cut slopes to remove loose, unstable material, and installing rock cable netting on exposed slopes to keep rocks off the roadway. The cable netting would not only make the increased retention area more effective, but would also help establish plant growth on the slopes by stabilizing the soil and decreasing soil erosion. Rocks trapped or held in place at the bottom of these slopes would need to be removed periodically.

Approximately 4.8 kilometers (3 miles) of uniform shoulder width would provide room along the highway for emergency parking and errant driver recovery. Recreational vehicles would also have room for emergency stops. New, larger and safer pullout locations would increase visitor photo opportunities within the basin. Debris on the roadway would decrease with the added rockfall retention area and cut-slope netting. All of the proposed elements would work together to make a motorist's visit to or through Mono Basin more enjoyable.